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New Plants from Wyoming. XIII.

BY AVEN NELSON

Potentilla Plattensis pedicellata

Erect, slender, several-stemmed from the crown of a semi-fleshy root, bright green but under a lens silky-strigose, taller than the species (often 3 dm. high): stipules entire or cleft-toothed, ovate-lanceolate, acute: leaflets divided nearly to the midrib, the segments linear-oblong, acute or subacute: inflorescence open, many-flowered, the long slender pedicels widely divaricate: bractlets and sepals subequal: petals scarcely exceeding the sepals.

The aspect of the plants now proposed as a variety of *P. Plattensis* is so different from that of the species that I did not at first associate them with it. Closer examination shows, however, that they must be thus allied and probably best as a variety only.

Collected on the grassy banks of a mountain stream, Centennial, Albany Co., July 27, 1900, no. 7730.

Ligusticum affine

Moderately stout, .5-1 m. high, glabrous: root leaves large, including the petiole from one third to one half the length of the stems; petiole from nearly as long to much exceeding the blade; blade usually biternate, then once or twice pinnate; segments mostly ovate-oblong, deeply cleft into linear-oblong or linear-lanceolate lobes, these sometimes few-toothed: stem leaves few (1-3), much reduced, usually ternate, then pinnate, the segments more deeply cleft or even divided and with narrower lobes: umbel long-peduncled, sometimes 1-3 long-peduncled accessory umbels (inflorescence subcorymbose), many-rayed, crowded (*i. e.*, the rays suberect), with involucels of few linear-subulate bractlets which are usually early deciduous: rays (fruiting) 3-6 cm. long: pedicels 5-10 mm. long: flowers white: fruit elliptic, 5 mm. long, the ribs distinctly winged: oil tubes usually 5 in the intervals and 10 on the commissural side: stylopodium flattened-hemispherical.

This species now proposed was included in *L. simulans* C. & R., Monog. N. A. Umbel. 135, but it is no part of the type numbers there cited. The species are distinct not only by good field char-

ters but fruit characters are not wanting. It is only the ampler and well fruited specimens of the collections of 1900 (which have not yet been distributed) that makes this segregation possible.

That Dr. Rose himself was inclined to think that the material represented two species is shown by the fact that some of the numbers of the collections of 1896 and 1897 were at that time named *L. Porteri* while the specimens that he has made his type numbers were not referred to any species.

L. affine is the larger plant, with pale-green foliage in contrast to the dark-green of the others; the leaves are more decompose and the segments more deeply cleft with much narrower lobes; the naked peduncles (often subcorymbose) conspicuously surpass the foliage; the umbels are more compact; the fruits larger, broader and more evidently winged; the number of oil tubes greater (mostly 3 in the intervals and 6-8 on the commissural side in *L. simulans*). The two species grow in similar situations and at the same stations but not, so far as my observations go, commingled. My collections of them have always been kept distinct in the field. I cite 7695, Centennial, Albany Co., July 26, 1900, as type. Of the numbers named under *L. simulans* I would here refer 1784, 4175 and possibly others.

Pseudocymopterus sylvaticus

Root fleshy, cylindrical or conical, 3-10 cm. long; stems glabrous as are also the leaves, 1-2 from the narrowed crown, sheathed below by the dead, brown leaf bases, slender, erect, 3-8 dm. high (including the long naked peduncle), usually simple but sometimes with one or two slender erect branches: leaves few, oblong to ovate in outline, pinnate; the segments 5-9, mostly petiolulate, ovate in outline, 3-6 cm. long, pinnately or bipinnately cleft or parted into linear acute segments; root-leaves 10-25 cm. long, including the slender petiole which usually exceeds the blade; stem-leaves only 2-5, on successively shorter petioles: umbel 5-10-rayed, with involucels of long linear bractlets: rays 15-25 mm. long; pedicels very short: fruit broadly elliptic, 5 mm. long; lateral wings thin and as broad as the body; the dorsal and intermediate ribs thickened at base and narrowly winged, with narrow intervals; oil tubes mostly 1 (more rarely 2-3) in the intervals, 2-4 on the commissural side.

Allied to *P. montanus* (Gray) C. & R. In fact the descriptions

as drawn do not readily separate them. A considerable series of *P. montanum*, however, show the two species to be wholly distinct. The Wyoming plants when fully mature are seen to be tall slender plants, with the leaf-segments parted into long linear lobes. The peduncles are long and naked, the fruits are broader with thinner, conspicuous wings and the oil tubes are on the whole fewer. Their habitats seem to be as wholly different as their aspect. The typical New Mexican *P. montanus* occurs on "Sunny declivities at the foot of mountains," while *P. sylvaticus* is found in dense, wet or even boggy woods along streams. The young plants of *P. sylvaticus* have rather the hue and aspect of *Harbouria* than of *P. montanus*.

The type number is 7667, Tie City, Albany Co., July 20, 1900. Collected also on Saw Mill Creek, May 25, 1895, no. 1238. It seems probable that no. 217 of the Hall and Harbour collection and Professor Crandall's specimens from the mountains of Larimer Co., Colorado, July 14, 1898, may have to be included.

Musineon pedunculatum

Acaulescent or nearly so, glabrous throughout : root deep-set, 1-2 dm. long, 10-25 mm. in diameter, cylindrical or fusiform, semi-woody and covered with a thick, rough or warty bark : crown clothed with brown, scarious, nerved, lanceolate bracts : stems few (2-5), borne on a short naked foot 2-4 cm. long, the foot more or less concealed by the scarious bracts of the crown : each stem with 1 or 2 short (1-3 cm.) internodes, simple or branching at the nodes, terminated by a long naked widely divaricate or prostrate peduncle : leaves thick, somewhat glaucous, 4-8 cm. long, longer than the dilated petiole, of broad outline (oblong to ovate), usually ternate, the segments pinnate or even bipinnate, ovate in outline, the ultimate segments broad and short, variously cut or toothed : peduncles rather stout, slightly flexuous, 12-20 cm. long, much exceeding the leaves, sometimes twice or thrice as long : umbel 10-20-rayed ; rays 15-25 mm. long ; pedicels very short (1-4 mm.) : fruits apparently smooth (not yet mature), 4 or 5 mm. long : oil tubes about 3 in the intervals, and 4 on the commissural side : seed slightly flattened dorsally, with plane face.

An undoubted *Musineon* yet more clearly distinct from *M. divaricatum* and *M. Hookeri* than they are from each other. It may be necessary sometime to slightly modify the fruit characters as given, since no fully mature fruits are at hand.

Secured on the stiff, Wasatch tertiary clays (almost devoid of other vegetation) at the Bush Ranch, near Steamboat Mt. in Sweetwater Co., June 10, 1900, no. 7093.

Musineon trachyspermum. I doubt if the reduction of this Nuttallian species to a synonym of *M. Hookeri* is justifiable. Among the specimens at hand from the interior desert region of Wyoming is one from the clay hills in the vicinity of the Platte River that answers well to the description in T. & G. Fl. 1: 642. It has been distributed under no. 4853.

Lomatium purpureum

Root thick, semi-woody, vertical, 1 dm. or more long, 1 cm. (more or less) in diameter: leaves all basal, wholly glabrous, ternate and each division pinnate or bipinnate; the ultimate segments small, from oblong to linear, 5–8 mm. long, obtuse or subacute; the primary petiole 5–9 cm. long, about as long as the rest of the leaf, purple as are also the peduncles: scapes (peduncles) glabrous, 10–20 cm. long, exceeding the leaves: umbel unequally 7–10-rayed, the younger and shorter ones often aborting: involucre wanting; involucels of oblong, acute, green bractlets: rays 5–30 mm. long: flowers yellow, pedicels very short, in fruit only 1–3 mm. long; fruit glabrous, elliptic, 5–7 mm. long, the wings half as wide as the body, the dorsal and intermediate ribs evident, acute or even narrowly winged: oil tubes 1–3 in the intervals, 4–6 on the commissural side.

The specimens upon which this species is based were collected in the Yellowstone Park in 1899 and distributed under a herbarium name in the sets of plants from that region.

At that time I thought it a *Peucedanum* and I still see no reason for changing that opinion except, of course, to adopt the name *Lomatium* which Drs. Coulter and Rose have shown to be the proper and tenable name of a large part of our west-American plants that have so long been known as *Peucedanum*.^{*} In the monograph cited, one of the numbers (5496) distributed is referred to *Pseudocymopterus montanus* (Gray) C. & R. but on what ground is not clear. Habitual and fruit characters are certainly those of *Lomatium*. The thin coherent lateral wings, the strengthening cells beneath each rib and the obsolete calyx teeth point to this rather than any other genus. In habit is much like *L. orientale*

^{*} Monog. N. A. Umbel. 204.

C. & R., *L. Nevadense* (Wats.) C. & R. or *L. Cous* (Wats.) C. & R. but it has nearly the fruit of *L. circumdatum* (Wats.) C. & R. Like that species it shows a tendency in the dorsal and intermediate ribs to become narrowly winged and the seed is somewhat concave on the face with a central ridge.

The collections of it are all from Yellowstone Park as follows: 5496, Madison Cañon, June 25; 5611, Glen Creek, July 1; 6720 (type), Dunraven Peak, Aug. 27. It occupies open, stony or gravelly ridges at 6000 to 9000 ft. altitude.

Dodecatheon philoscia

Glabrous throughout: scape 1.5–3 dm. high, very slender, mostly 1–3-flowered though sometimes with more, from a short cormose-rootstock with fibrous roots: leaves few (4–8), elliptic to oblong, mostly obtuse, variable in size (2–7 cm. long), tapering into a short slender petiole: bracts minute, oblong: calyx-lobes lanceolate, 2–3 mm. long, twice as long as the tube: united part of the corolla with a purple wavy line; lobes deep sky-blue, narrowly oblong, 15 mm. long, about 3 mm. broad, obtuse: united filaments about 1 mm. long, yellow: anthers broadly subulate, acute, deep-blue on the back, about 5 mm. long; connective linear-acuminate: capsules on slender erect pedicels (which are 2–4 cm. long), subcylindric, about 4 mm. in diameter and 1 cm. long, twice as long as the calyx, splitting only at the summit into five (at length) divergent teeth.

I am at a loss to know to what species this is most nearly allied. On account of the few, broad, thin (almost membranous when dry), entire, widely spreading leaves it cannot be compared with *D. pauciflorum* (Durand) Greene from which its short filaments also separate it.

It perhaps may be best compared with the *D. Maedia* of the eastern states from which its smaller size, slender scape and pedicels, slender petioles, few flowers and different capsule separate it.

It was secured on gravelly and stony, shaded bars in the river bed at Jelm (Laramie River), Aug. 11, 1900, no. 8063.

Swertia palustris

Stems simple, erect, glabrous, 2–3 dm. high: leaves glabrous, thin, almost membranous when dry, entire or rarely denticulate: root-leaves oblong to elliptic, usually very obtuse, 5–10 cm. long, on margined petioles somewhat shorter; stem-leaves several, gen-

erally in pairs but not rarely alternate, spatulately oblanceolate or broader, tapering gradually into the broad margined petiole which becomes gradually shorter upward and absent in the uppermost : inflorescence very strict : peduncles erect, axillary to the bracts and uppermost leaves, 1-3-flowered : flowers 5-merous : sepals subulate-lanceolate, delicately nerved, about half as long as the petals : corolla lobes dark blue shading to purple, oblong, obtuse, about 10 mm. long, 3-4 mm. broad : glands orbicular, the appendages few (10 or less), short subulate : seeds seemingly lenticular (those at hand immature), wing-margined.

It often happens, once attention is called to it, that some species that has remained a long time generally accepted and undisturbed is found to be a very nicely separable aggregate. Dr. Greene and others have repeatedly made this clear. As soon as segregation has begun other workers must of necessity investigate their own material and at the same time it stimulates the field work in that particular group. This nearly always leads to the definition of yet other species. Evidently this experience is to be repeated in the case of *Swertia*. The old world *S. perennis* is wholly unknown to me but, with the characters which Dr. Greene assigns to it* it is no longer possible to refer any of our forms to that. In fact to do so would be to reject the work already done. But if we accept the characters, upon which Dr. Greene's species† are founded, as specific, it is equally impossible to include some other Rocky Mountain forms in them. *S. palustris* is nearest to *S. scopulina* but differs from it in its leafy stems, more numerous 5-merous flowers, shorter sepals and apparently very different seeds.

The species now proposed is abundant in shaded subalpine bogs of southern Wyoming. I cite no. 7774, Nash's Fork, July 30, 1900, as type.

Swertia congesta

Commonly less than 2 dm. high : leaves alternate, rarely more than 3 or 4, usually on the basal half of the stem (the upper half somewhat scapiform), from elliptic to oblanceolate, obtuse or subacute, 3-6 cm. long, sessile or on short margined clasping petioles : inflorescence congested, usually subtended by a pair of foliar bracts : flowers 5-merous, 3-7, dark bluish-purple : sepals as in

* Pittonia 4 : 184.

† Pittonia 1. c.

the preceding: corolla lobes elliptic, obtuse, usually emarginate, 8–10 mm. long, nearly half as broad; glands cup-shaped, the setaceous appendages as long as the cup: filaments flat and thin, their bases involved in a ring of very short, sparse, subulate setae in the base of the corolla: seeds small, very numerous, irregular (?), narrowly wing-margined on the angles.

Readily distinguished from the preceding by its smaller size, alternate leaves, congested inflorescence and the ring of setae in the base of the corolla.

It occurs at higher elevations than the preceding, being alpine or nearly so, and in open wet grassy swales. The type no. is 7852, Medicine Bow Mts., Aug. 1, 1900.

Phacelia Knighti

A diminutive annual, 2–5 cm. high, minutely puberulent, scarcely viscid, simple or branched: leaves few (5–10?), semi-fleshy, orbicular to ovate, entire or nearly so, 5–10 mm. long: flowers few, subspicate and nearly sessile in the uppermost axils: corolla narrowly campanulate, about 5 mm. long, $\frac{1}{3}$ longer than the linear-spatulate calyx lobes, the limb purple, the tube yellowish, the appendages of the tube narrowly linear: seeds about 14, oblong, large for the plant, conspicuously alveolate-hexagonal-reticulate, slightly wing-margined by the cellular coat.

While this species is probably nearest to *P. cephalotes* Gray yet it can hardly be compared with it and may be best looked upon as a strictly coördinate member of that section of *Phacelia* containing those 4 or 5 species which are peculiar to the arid interior West. It is a vernal species following closely upon the melting of the spring snows. The specimens at hand were secured upon the absolutely naked (to all appearances) slopes of the Wasatch clays in Sweetwater Co., June 10, 1900 (no. 7118). The tiny plants occurred only in the cracks in the loose soil and were detected by Professor W. C. Knight to whom the species is dedicated.

Asclepias curvipes

Root thick and woody: stems usually several, from ascending to nearly erect, 4–8 dm. high, simple, obscurely puberulent, becoming glabrous: leaves opposite or sometimes the lowest alternate, ovate-lanceolate, obtuse or acute, minutely and softly pubescent on the lower face, glabrate on the upper, 7–15 cm. long, short-peduncled, exceeding the short internodes: umbels mostly simple, few: peduncles 3–7 cm. long, axillary from the only

slightly reduced uppermost leaves: pedicels slender, 15–20 mm. long: sepals lanceolate, 3–4 mm. long: corolla purple; its lobes ovate-elliptic, obtuse and usually emarginate, twice as long as the sepals: hoods yellowish with purple center, ovate, obtuse, the base slightly narrowed, as long as the corolla lobes, exceeding the strongly incurved, sickle-shaped horn: anther wings broad and unappendaged: follicles lanceolate-acuminate in outline, 7–10 cm. long, erect on the sharply deflexed fruiting pedicels, mostly densely white tomentose and with a lighter tomentum on the pedicels and peduncles.

In 1895 I collected this species in flower at Wood's Landing (no. 1556) and determined it as *A. Hallii* Gray. In 1900, I secured the same plant in fruit from the same locality (no. 8191). I am now convinced that, while it is related to *A. Hallii*, the relatively long peduncles, the somewhat differently colored flowers, the broader corolla lobes and hoods, the absence of the double gibbosity in the hoods, the sharply deflexed pedicels and the decided tomentum on the erect follicles easily separate it.

Pentstemon exilifolius

Stems several to numerous, from a tufted, usually much branched caudex from which spring numerous thickened-fibrous roots, glabrous, as are also the leaves and inflorescence, 1 (rarely 2) dm. high: leaves very numerous, crowded on the crowns, narrowly linear, channelled or involute, subulate-pointed, 15–25 mm. long; stem-leaves opposite, similar, passing into the smaller bracts: thyrsus narrow (approaching a raceme), crowded, few- to many-flowered; pedicels slender: sepals ovate-acuminate, the acuminations green, the body scarious-margined: corolla white, tubular-funnelform, 12–15 mm. long, obscurely pubescent in the throat, scarcely bilabiate, the nearly obicular lobes widely spreading, 6–7 mm. long: anthers glabrous, the sterile filament scarcely dilated, very stiffly and densely short pubescent.

This species has been considered as *P. laricifolius* Hook. & Arn., a species published in Bot. Beechy's Voyage from Snake Fort. Certain plants from the interior of Wyoming, closely allied, were included by Dr. Gray in the description as drawn for the Syn. Fl. The Wyoming specimens that I have seen are clearly distinct. *P. laricifolius*, the original description shows, has obtusish shining leaves; the corolla is ventricose; both the lip and throat are pilose as is also the sterile filament. In *P. exilifolius* the corolla is almost glabrous and the sterile filament re-

minds one of a diminutive tooth brush. In fact *P. exilifolius* is more nearly allied to *P. aridus* Rydb. of Montana though specimens and descriptions show these also clearly distinct.

This species is common on dry stony plateaus in southern Wyoming and has been distributed by me as *P. laricifolius* under the following numbers: 419, 1442, 5015 and 7460. The latter is taken as the type and is from Halleck Cañon, July 6, 1900.

Pentstemon exilifolius desertus

Quite similar; the leaves broader; calyx purplish; corolla purple; pubescence in the throat yellow, stiffer than in the species.

This variety occurs sparingly on dry sandstone ridges in the Red Desert. Point of Rocks, June 12, 1900, no. 7160.

Castilleja collina

Many stemmed from a short caudex with an enlarged crown, 15–25 cm. high (the plant often as broad): the roots usually numerous, yellowish, thickened, semi-fleshy: pubescence a fine puberulence with some soft white woolly hairs at the base of the leaves, on their margins and in the inflorescence: stems simple, the exterior ones in the cluster decumbent: leaves 2–4 cm. long, dark green, variously cleft; the lower mostly pinnately, with the body narrowly lanceolate and cuneate at the base, the divaricate lobes linear or broader, sometimes again cleft, 1–3 on either side; the upper similar but with the undivided center becoming broader (oblong or broader): bracts bright red, more freely cleft than the leaves, as large or larger: calyx sparsely soft pubescent, cleft nearly to the middle before, less deeply behind, the lobes again cleft half their length into lanceolate segments: corolla yellowish, about 3 cm. long; galea distinctly exceeding the tube, slender, truncate or with a short tooth at apex, obscurely pubescent on the exerted tip; lip very short, 3-toothed, the central one short, the lateral longer, acute, divaricate.

This species is common in southeastern Wyoming on gravelly, granite slopes. It has often been collected, the earlier specimens having been disturbed as *C. parviflora*. Later it has been disposed of (under protest) as *C. angustifolia* (Nutt.) Don. From this it differs in its broader, always cleft leaves, its shorter inflorescence (short even in fruit), in its unequally cleft calyx, in its galea which exceeds the tube and in its characteristic lip. The color, too, is not the scarlet varying to yellow that occurs in *C. angustifolia*.

The type no. is 6995, Sand Creek, May 31, 1900.

Valeriana furfurescens

Root fleshy, smooth, vertical, cylindro-conical, 1–2 dm. long, usually only 6–12 mm. in diameter, but slightly enlarged at the crown : stems singly (rarely more) from the crown, strict, slender, striate, glabrous, 5–10 dm. high including the long inflorescence : leaves largely basal, all narrow, glabrous except for a minute puberulence on the margins and sometimes on the veins : root-leaves linear-oblongate, entire (seemingly always so), acute at apex, tapering gradually into a slender, scarcely margined petiole, 10–20 cm. long including the variable petiole (petiole usually much shorter than the blade) ; stem-leaves few, entire or with a few approximate lobes, with broader, shorter, often connate petioles : bracts linear : bractlets minute, ovate, acuminate, scarious margined : inflorescence a greatly elongated open-paniculate cyme, often more than half of the height of the plant : flowers exceedingly minute, light yellowish-green, very numerous ; corolla 1–1.5 mm. long, the ovate-orbicular lobes about equalling the campanulate tube : stamens 3, included, nearly sessile : fruit about 3 mm. long, ovate, compressed, glabrous but minutely scurfy-rugulose, or in age merely splotted with brown.

This excellent species finds its nearest ally in *V. edulis* Nutt. but the specific distinctions are so evident that it is almost unnecessary to direct attention to them. The enormous root, the pubescent, semi-fleshy, pinnate leaves, the less open inflorescence, the relatively large white flowers and pubescent fruits of *V. edulis* will at once separate them.

V. furfurescens was secured in a small grassy mountain valley where it occurred in the greatest abundance and seemed to be unusually uniform in aspect and size of all the organs characterized. Chug Creek, near Iron Mountain Station, July 2, 1900, no. 7381.

Chrysopsis resinolens

Perennial, green and resin scented : root woody, conical, the expanded crown bearing few to many ascending or suberect stems : stems 2–4 dm. high, very leafy especially upward, sparsely hispid-ciliate and minutely glandular or resinous : leaves numerous, erect or but slightly spreading, with minute, gland-tipped hairs or dotted with resinous particles, hispid-ciliate especially on the margins ; the lower dead and falling away at anthesis ; narrowly oblongate, on short, hispid-ciliate petioles ; the upper sessile, narrowly oblong or subspatulate, 3–5 cm. long, obtuse or subacute, apiculate : inflorescence terminal, crowded,

very leafy, densely but finely glandular, the leafy bractshispid-ciliate on the margins; heads few (3-10), rather large, paniculately-corymbose: involucre broadly campanulate, 1 cm. high, green, granular-resinous, ciliate-pubescent; bracts linear-acute, in 3-4 rows, the inner equalling the disk: rays 20 (more or less), deep yellow or orange colored, 8-12 mm. long: pappus dingy, the outer series distinct, of short, narrow scabrous-margined paleae.

The nearest ally of this species seems to be *C. viscida* (Gray) Greene, which has a more southwesterly range. That differs from the species now proposed in its strongly decumbent, rigid stems, its smaller size, smaller and fewer leaves, and open, branched inflorescence. In many respects *C. resinolens* is nearer *C. fulcrata* Greene from which, however, a comparison of specimens shows it to be amply distinct.

Collected on open slopes in the foothills of Laramie Peak, Albany Co., July 13, 1900. The type number is 7583.

Chrysopsis resinolens ciliata

Smaller than the species, the stems more numerous and crowded on the crown; leaves nearly glabrous on the faces but conspicuously ciliate margined, closely and minutely glandular-dotted; heads fewer, closely crowded and subtended by leafy bracts: rays broader and fewer: the outer pappus shorter and of fewer paleae.

Collected on sandy river banks, Dunn's Ranch, Albany Co., July 16, 1900, no. 7560.

Machaeranthera ramosa

Perennial from rather deep-set woody roots: stems several to numerous, prostrate-spreading or somewhat assurgent, each freely branched (often intricately so) throughout, 3-4 dm. long, the whole plant forming a conspicuous mat from .5 m. to nearly 1 m. across, stems and slender branchlets green with a fine puberulence: leaves green, nearly glabrous; the radical and cauline entire or irregularly denticulate, broadly linear or linear-spatulate, 3-5 cm. long, often wanting at anthesis; the rameal numerous, small, linear, entire or nearly so, often somewhat fascicled: heads numerous, terminating the branchlets; involucre broad, sub-hemispherical, the lanceolate bracts in 5 or 6 series and rather loosely imbricated, the green, acuminate tips at length reflexed, distinctly glandular-viscid (the peduncular branchlets only slightly so): rays 20 (more or less), purple: akenes compressed, greenish, thinly and finely pubescent.

Some years since a large number of specimens of this species were distributed (partly through the Minnesota Exchange Bureau) as *Aster canescens viridis* Gray, under nos. 1150 and 2788. More recently it has been distributed as *Machaeranthera canescens* (Pursh) Gray, which it is a long ways from being. It is, possibly, nearer to *M. viscosa* (Nutt.) Greene, but from that also it is at once separated by its habit. From the former by the pubescence; the number and the position of the involucre bracts, and the color of the rays. From the latter by the shape of the involucre and akenes. The species may be somewhat local. It is abundant in certain localities on the Laramie Plains but I have never collected it outside of this range. I cite as type number 8152, Laramie, Aug. 27, 1900.

Rudbeckia ampla

Perennial, from horizontal rootstocks with large fleshy crowns from which spring numerous semi-fleshy roots: stems clustered, *i. e.*, several from the same tuft, 1–2 m. high, glabrous, strongly striate, moderately branched above: leaves numerous and ample, light green and glabrous below, a shade or two darker above with minute scattering hispid hairs from pustulate bases (the hairs sometimes deciduous), with conspicuous, light-colored veins: basal leaves large, 2–3 dm. broad, trifoliate, on petioles 2–4 dm. long: the leaflets petiolulate, broadly oval or ovate in outline, three-cleft, the segments coarsely and irregularly serrate, the middle segment often again lobed or cleft: lower stem-leaves similar but smaller, the petioles becoming slenderer and shorter upward, the leaves merely 3-parted: upper stem-leaves sessile, 3-parted or merely cleft, 1–2 dm. long; the segments becoming entire as to margin, the lateral oblong-lanceolate, the middle variously toothed and cleft: rameal leaves reduced, becoming entire and bract-like, from broadly oval-acute to lanceolate: heads terminating the branches, large: involucre bracts oblong to ovate, obtuse or subacute, 8–12 mm. long: rays 6–12, conspicuous, 3–5 cm. long, 8–15 mm. wide: disk in full anthesis and in fruit cylindrical-ovate, 2–4 cm. high.

That this is in part the *R. laciniata* of Gray's Syn. Fl. 262 is possible but it is far from the typical eastern *R. laciniata* L. The pinnately arranged narrow segments with wide sinuses of the smaller leaves of that, need but to be compared with the trifoliate-palmate broad segments and narrow sinuses of this to see that they are distinct. The larger rougher disk, the fewer and stouter

peduncles and the different involucral bracts are equally characteristic of *R. ampla*.

Whether all the Rocky Mountain forms belong here I am unable to say, but I would include Baker's no. 699, Pagosa Springs, Colo.; 224, Jennie M. Archibald, Berwind, Colo.; and all my numbers as follows: Eagle Rock Cañon, Aug., 1891; no. 1575, Cotton Wood Cañon, Aug. 5, 1895; no. 7709, Centennial, July 26, 1900.